

**Date:** 4/12/10

**Lesson Title:** Exponential Growth

**Objective:** To write and evaluate expressions that model exponential **GROWTH**.

**In:** Remember the bug worksheet? Describe what happened to the bugs in your room...



Biller bacteria



doubles every hour (eeewww!)

If we begin with 25 bacteria, how fast will the **Biller bacteria** grow?

infinite clc



I'm a link

E. coli? Or Biller Bacteria?



Create a table



Time (hr)							
Population							



In the work section of your notes, NEATLY draw the table above. Fill in the table beginning with time zero, and end with 6 hours



Time (hr)	0	1	2	3	4	5	6
Population	25	50	100	200	400	800	1600
Population	25(1)	25(2)	25(4)	25(8)	25(16)	25(32)	25(64)

Why do you think we factor out a 25?

Will we always factor out a 25?

What do you notice about the numbers inside the parantheses?



Time (hr)	0	1	2	3	4	5	6
Population	25(1)	25(2)	25(4)	25(8)	25(16)	25(32)	25(64)

$25(2^0)$

$25(2^1)$

$25(2^2)$

$25(2^3)$

$25(2^4)$

$25(2^5)$

$25(2^6)$

What do you notice about the exponent?

What do you think the 25 represents?

The number 2 is called a **constant multiplier...**  
Why do you think?

25 is the  
"initial amount"



2 is the  
"constant  
multiplier"

$25(2^n)$  is called an  
exponential expression

↑  
Algebraic Expression

$$f(x) = 25(2^x)$$

is the **exponential function**  
that describes the growth of  
**BILLER BACTERIA!**

### Out:

Create a new exponential expression given the following information:

**Evans E-Coli** triples every hour...  
A sample of **Evans E-Coli** begins with 17 bacteria.



## Summary:

EXPLAIN 3 NEW THINGS YOU LEARNED TODAY ABOUT

# EXPONENTIAL gROWTH

## Homework

Write a "story" about something that grows

# EXPONENTIALLY

Include a table, function and a graph

**Don't forget your  
calculators for tomorrow!**